



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/842,312	04/25/2001	Andrew C. Sturges	S01022/80655 (JHM/EJR)	6679

7590 06/12/2002

James H. Morris
Wolf, Greenfield & Sacks, P.C.
Federal Reserve Plaza
600 Atlantic Avenue
Boston, MA 02210

[REDACTED]
EXAMINER

ELLIS, RICHARD L

[REDACTED]
ART UNIT

[REDACTED]
PAPER NUMBER

2183

DATE MAILED: 06/12/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/842,312	Sturges et al.
	Examiner Richard Ellis	Group Art Unit 2183

-The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address-

Period for Response

A SHORTENED STATUTORY PERIOD FOR RESPONSE IS SET TO EXPIRE 3 (Three) MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a response be timely filed after SIX (6) Months from the mailing date of this communication.
- If the period for response specified above is less than thirty (30) days, a response within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for response is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to respond within the set or extended period for response will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- Responsive to communication(s) filed on _____.
 This action is FINAL.
 Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- Claim(s) 1-37 is/are pending in the application.
 Of the above claim(s) _____ is/are withdrawn from consideration.
 Claim(s) _____ is/are allowed.
 Claim(s) 1-37 is/are rejected.
 Claim(s) _____ is/are objected to.
 Claim(s) _____ are subject to restriction or election requirement.

Application Papers

- See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
 The proposed drawing correction, filed on _____ is approved disapproved.
 The drawing(s) filed on _____ is/are objected to by the Examiner.
 The specification is objected to by the Examiner.
 The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119(a)-(d)

- Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
 All Some* None of the CERTIFIED copies of the priority documents have been
 received
 received in Application No. (Series Code/Serial Number) _____.
 received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

Attachment(s)

- | | |
|--|---|
| <input type="checkbox"/> Information Disclosure Statement(s), PTO-1449, Paper No(s). _____ | <input type="checkbox"/> Interview Summary, PTO-413 |
| <input checked="" type="checkbox"/> Notice of References Cited, PTO-892 | <input type="checkbox"/> Notice of Informal Patent Application, PTO-152 |
| <input type="checkbox"/> Notice of Draftsperson's Patent drawing Review, PTO-948 | <input type="checkbox"/> Other _____ |

Office Action Summary

1. Claims 1-37 are presented for examination.
2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The current title is imprecise.
3. Applicant must update all cross-references to related applications cited in the specification to include the relevant status, PTO serial numbers, and patent numbers, where appropriate, of the cited cases. At least one such citation occurs on page 20 of the specification.
4. Applicant is reminded of the proper content of a summary of the invention as set forth in paragraph (e) below.

Content of Specification

(a) Title of the Invention. (See 37 CFR § 1.72(a)). The title of the invention should be placed at the top of the first page of the specification. It should be brief but technically accurate and descriptive, preferably from two to seven words.

(b) Cross-References to Related Applications: See 37 CFR § 1.78 and section 201.11 of the MPEP.

(c) Statement as to rights to inventions made under Federally sponsored research and development (if any): See section 310 of the MPEP.

(d) Background of the Invention: The specification should set forth the Background of the Invention in two parts:

(1) Field of the Invention: A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the applicable U.S. patent classification definitions of the subject matter of the claimed invention. This item may also be titled "Technical Field".

(2) Description of the Related Art: A description of the related art known to the applicant and including, if applicable, references to specific related art and problems involved in the prior art which are solved by the applicant's invention. This item may also be titled "Background Art".

(e) Summary: A brief summary or general statement of the invention as set forth in 37 CFR § 1.73. The summary is separate and distinct from the abstract and is directed toward the invention rather than the disclosure as a whole. The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and preferably indicated in the Background of the Invention). In chemical cases it should point out in general terms the utility of the invention. If possible, the nature and gist of the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention.

(f) Brief Description of the Drawing(s): A reference to and brief description of the

drawing(s) as set forth in 37 CFR § 1.74.

(g) Description of the Preferred Embodiment(s): A description of the preferred embodiment(s) of the invention as required in 37 CFR § 1.71. The description should be as short and specific as is necessary to describe the invention adequately and accurately. This item may also be titled "Best Mode for Carrying Out the Invention". Where elements or groups of elements, compounds, and processes, which are conventional and generally widely known in the field of the invention described and their exact nature or type is not necessary for an understanding and use of the invention by a person skilled in the art, they should not be described in detail. However, where particularly complicated subject matter is involved or where the elements, compounds, or processes may not be commonly or widely known in the field, the specification should refer to another patent or readily available publication which adequately describes the subject matter.

(h) Claim(s) (See 37 CFR § 1.75): A claim may be typed with the various elements subdivided in paragraph form. There may be plural indentations to further segregate sub-combinations or related steps.

(i) Abstract: A brief narrative of the disclosure as a whole in a single paragraph of 250 words or less.

The present summary of the invention includes legal language and phraseology which is appropriate for the claims but which tends to obscure the summary of the invention. This does not provide a proper summary of the invention as called for in 37 CFR 1.73 and in MPEP 608.01(d). The present paragraphs of legal phraseology (page 5 to page 7) should be replaced with paragraphs of *narrative* English text describing the invention.

5. The nonstatutory double patenting rejection is based is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornam*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a non-statutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this

application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a Terminal Disclaimer. A Terminal Disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 1-37 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1-27 of U.S. Patent No. 5,961,637. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant application claims differ only by omission of elements present in the patented claims. As shown in *In re Karlson*, 153 USPQ 184 (CCPA 1963), it has been found to be obvious to delete an element and its function from a claim.

7. The following is a quotation of the appropriate paragraphs of 35 USC § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. The following is a quotation of the appropriate paragraphs of 35 USC § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

9. This application currently names joint inventors. In considering patentability of the claims under 35 USC § 103, the Examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR § 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the Examiner to consider the applicability of potential 35 USC § 102(f) or (g) prior art under 35 USC § 103.

10. The following is a quotation of 35 USC § 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

11. Claims 1, 5-7, 9, 15, 17, and 22-24 are rejected under 35 USC 102(b) as being clearly anticipated by Driscoll, Jr., U.S. Patent 3,551,895.

Driscoll, Jr. taught (e.g. see figs. 1-8J) the invention as claimed (as per claim 1),

including a data processing ("DP") system comprising:

- A) storage circuitry for holding a plurality of instruction at respective storage locations (fig. 1, "MEMORY"), said plurality of instructions being inherently arranged in instruction strings, each string inherently comprising a first instruction and a set of subsequent instructions;
- B) instruction fetch circuitry for fetching a sequence of instructions from the storage circuitry (fig. 1) and including an indicator for providing an indication of a next address at which a next fetch operation is to be effected (inherently present as a "program counter");
- C) execution circuitry for executing fetched instructions (fig. 2a-2o), wherein at least some of the instruction strings each includes a set branch instruction (SET) (col. 2 lines 44-49) which provides an indication of a target location from which a subsequent instruction may be fetched (col. 4 lines 5-13), the subsequent instruction being from a different instruction string (col. 4 lines 12-13), and wherein said instruction fetch circuitry is operated responsive to execution of a set branch instruction (SET) to fetch in parallel subsequent instruction from said string containing said set branch instruction and new instruction from said different instruction string commencing from said target location while the subsequent instructions continue to be executed (col. 1 lines 26-29);
- D) a target store for holding the indication of said target location , the indication being loaded into the store on execution of the set branch instruction (SET) and being held in the store as a valid indication until execution of a subsequent set branch instruction (col. 4 lines 13-15);
- E) select circuitry responsive to generation of an effect branch (DO) signal indicative that further instructions to be executed are said new instruction, to cause said execution circuitry to execute said new instruction and to cause said instruction fetch circuitry to fetch again new instruction commencing from said target location (col. 5 line 64 to col. 6 line 12 and col. 23 line 6 to col. 25 line 2).

12. As to claim 5, Driscoll, Jr. taught a first register for holding an indication of the address from which a next instruction is to be fetched (inherently present as the conventional known program counter).
13. As to claim 6, Driscoll, Jr. taught the target store holding the address from which the first instruction of a string of new instructions is to be fetched (col. 4 lines 9-15).
14. As to claim 7, Driscoll, Jr. taught the set ranch instruction identifying a special register which holds the address from which the first instruction of a string of new instructions is to be fetched (col. 4 lines 9-15).
15. As to claim 9, Driscoll, Jr. taught that the system was pipelined (col. 1 lines 53-71 and col. 2 lines 44-59).
16. As to claim 15, Driscoll, Jr. taught that the set branch instruction identifies the branch point after which further instructions to be executed are new instructions (col. 4 lines 9-14) and that the system comprised a branch point register for storing the branch point (col. 4 lines 13-14) and compare circuitry for generating the effect branch signal when the branch point matches the address in the program counter (col. 4 lines 14-16).
17. As to claims 17 and 22-25, they do not teach or define above the invention claimed in claims 1, 5-7, 9, and 15 and are therefore rejected under Driscoll, Jr. for the same reasons set fourth in the rejection of claims 1, 5-7, 9, and 15, supra.
18. Claims 2-4, 8, 18-19, and 25 are rejected under 35 USC § 103 as being unpatentable over Driscoll, Jr., U.S. Patent 3,551,895, as applied to claims 1, 5-7, 9, and 15, supra.
19. As to claim 2, Driscoll, Jr. taught that the instruction fetch circuitry comprised two instruction buffers (fig. 1, "LOOK AHEAD TREE"), a first buffer for holding subsequent instruction connected to the execution circuitry (fig. 1, "NO BRANCH SUB TREE"), and a second buffer for holding new instruction (fig. 1, "BRANCH SUB TREE") wherein the contents of the second buffer are used instead of the first buffer responsive to generation of the effect branch (DO) signal. Driscoll, Jr. does not specifically state that the second buffer is copied into the first buffer. However, Driscoll, Jr. performs the equivalent operation of using

the contents of the second buffer as if they were the contents of the first buffer.

20. As to claim 3, Driscoll, Jr. did not specifically teach a pair of instruction fetchers, however, Driscoll, Jr. implies that there are more than one instruction fetcher by indicating that instructions along both the branch and fall-through path are fetched into the look ahead tree (col. 1 lines 26-29).
21. As to claim 4, Driscoll, Jr. did not teach a third instruction fetch unit for fetching predicted conditional instructions. However, as shown in *St. Regis Paper Co. v Bemis Co.* 193 USPQ 8 (7th Cir. 1977), to duplicate parts for multiple effects is generally not given patentable weight or would have been an obvious improvement. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have duplicated the instruction fetch circuitry because doing so allows for logical partitioning of the tasks being performed by the fetch system by having one circuit responsible for fetching one path and only one path as well as allowing the system to fetch instructions along the paths in a manner faster than could be performed with only a single or with two fetch units.
22. As to claim 8, Driscoll, Jr. did not teach that the target store holds the address of a memory location which holds the address of the first instruction of the string of new instructions. However, indirect addressing is well known in the art. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have included indirect addressing in the set branch instruction because doing so allows for greater flexibility in specifying the relevant data necessary for the instruction by allowing it to be stored in data storage instead of in the instruction stream itself.
23. As to claims 18-19, and 25, they do not teach or define above the invention claimed in claims 2-4, and 8 and are therefore rejected under Driscoll, Jr. for the same reasons set forth in the rejection of claims 2-4, and 8, supra.
24. Claims 10-14, 16, 20-21, 26, and 27-37 are rejected under 35 USC § 103 as being unpatentable over Driscoll, Jr. as applied to claim 1-9 above, and further in view of Cocke et al., U.S. Patent 3,577,189.

25. As to claim 10, Driscoll, Jr. did not teach a further instruction for determining the branch point by causing generation of the effect branch signal. However, Cocke et al. taught a specific branch point determination instruction (fig. 5, "EXIT").
26. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined Cocke et al.'s specific instruction for determining the branch point with Driscoll, Jr.'s system because of Cocke et al.'s teaching that using a specific branch point instruction allows for the performing of multi-way branching by compounding multiple branch condition determinations and executing a single branch effect instruction (col. 3 line 47 col. 4 line 17).
27. As to claim 11, Cocke et al. taught that the further instruction was located at the branch point after which new instructions are to be executed (fig. 5).
28. As to claim 12, Cocke et al. taught that the instruction was located in the string prior to the branch point after which further instruction to be executed are the new instructions (fig. 5), and Driscoll, Jr. already taught a branch point register for holding the branch point.
29. As to claim 13, Cocke et al. taught that the further instruction was a different instruction fro the set branch instruction (fig. 5, "EXIT").
30. As to claim 14, Cocke et al. taught that the further condition defined a condition and that further instruction are new instruction only if the condition is satisfied (col. 2 lines 14-29)
31. As to claim 16, Cocke et al. taught that the system further comprised a return register for holding a return address being the address of the next instruction after the branch point, wherein the further instruction is effective to generate the effect branch signal and to save the return address in the return register and the branch instruction identifies the return register to indicate the target location (col. 2 lines 14-28).
32. As to claims 20-21, 26, and 27-37, they do not teach or define above the invention claimed in claims 10-14 and 16 and are therefore rejected under Driscoll, Jr. in view of Cocke et al. for the same reasons set fourth in the rejection of claims 10-14 and 16, supra.
33. The prior art made of record and not relied upon is considered pertinent to Applicant's

Serial Number 09/342,312
Art Unit 2183
Paper Number 4

disclosure.

34. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) days from the mail date of this letter. Failure to respond within the period for response will result in **ABANDONMENT** of the application (see 35 USC 133, MPEP 710.02, 710.02(b)).

35. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Richard Ellis whose telephone number is (703) 305-9690. The Examiner can normally be reached on Monday through Thursday from 7am to 5pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Eddie Chan, can be reached on (703) 305-9712. The fax phone numbers for this Group are: After-final: (703) 746-7238; Official: (703) 746-7239; Non-Official/Draft: (703) 746-7240.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3900.

Richard Ellis
June 5, 2002



Richard Ellis
Primary Examiner
Art Unit 2183